

Appl. No. 10/765,660
Docket No.: H1799-00216
Reply to Office Action of June 28, 2005

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A capillary structure for a heat transfer device comprising:

a plurality of particles joined together by a brazing compound comprising about sixty-five percent weight copper and thirty-five percent weight gold such that fillets of said brazing compound are formed between adjacent ones of said plurality of particles so as to form a network of capillary passageways between said particles wherein at least one vapor vent is defined through said capillary structure.
2. (Original) A capillary structure according to claim 1 wherein said plurality of particles comprise a first melting temperature and said brazing compound comprises a second melting temperature that is lower than said first melting temperature.
3. - 4. (Canceled)
5. (Previously Presented) A capillary structure according to claim 1 wherein said plurality of particles are selected from the group consisting of

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carbon, tungsten, copper, aluminum, magnesium, nickel, gold, silver, aluminum oxide, and beryllium oxide.

6. (Previously Presented) A capillary structure according to claim 1 wherein said plurality of particles comprise a shape selected from the group consisting of spherical, oblate spheroid, prolate spheroid, ellipsoid, polygonal, and filament.

7. (Previously Presented) A capillary structure according to claim 1 wherein said plurality of particles comprise at least one of copper spheres and oblate copper spheroids having a melting point of about one thousand eighty-three °C.

8. (Previously Presented) A capillary structure according to claim 1 wherein said brazing compound comprises six percent by weight of a finely divided copper/gold.

9. (Previously Presented) A capillary structure according to claim 1 wherein said brazing compound is present in the range from about two percent to about ten percent by weight.

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10. (Previously Presented) A capillary structure according to claim 1 wherein said plurality of particles comprise copper powder comprising particles sized in a range from about twenty mesh to about two-hundred mesh.

11. – 14. (Cancelled)

15. (Previously Presented) A capillary structure for a heat transfer device comprising:

a plurality of particles joined together by a brazing compound comprising about sixty-five percent weight copper and thirty-five percent weight gold such that fillets of said brazing compound are formed between adjacent ones of said plurality of particles so as to form a network of capillary passageways between said particles wherein a plurality of vapor vents are defined through said capillary structure.

16. (Original) A capillary structure according to claim 15 wherein said vapor vents comprise a cross-sectional profile selected from the group consisting of cylindrical, conical, frustoconical, triangular, pyramidal, rectangular, rhomboidal, pentagonal, hexagonal, octagonal, polygonal and curved.

17. (Previously Presented) A heat pipe comprising:

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a hermetically sealed and partially evacuated enclosure, said enclosure comprising internal surfaces;

a wick disposed on at least one of said internal surfaces and comprising a plurality of particles joined together by a brazing compound comprising about sixty-five percent weight copper and thirty-five percent weight gold such that fillets of said brazing compound are formed between adjacent ones of said plurality of particles so as to form a network of capillary passageways between said particles wherein at least one vapor vent is defined through said capillary structure; and

a two-phase fluid at least partially disposed within a portion of said wick.

18. (Original) A heat pipe according to claim 17 wherein said plurality of particles comprise a first melting temperature and said brazing compound comprises a second melting temperature that is lower than said first melting temperature.

19. – 20. (Cancelled)

21. (Previously Presented) A heat pipe according to claim 17 wherein said plurality of particles are selected from the group consisting of

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carbon, tungsten, copper, aluminum, magnesium, nickel, gold, silver, aluminum oxide, and beryllium oxide.

22. (Previously Presented) A heat pipe according to claim 17 wherein said plurality of particles comprise a shape selected from the group consisting of spherical, oblate spheroid, prolate spheroid, polygonal, and filament.

23. (Previously Presented) A heat pipe according to claim 17 wherein said plurality of particles comprise at least one of copper spheres and oblate copper spheroids having a melting point of about 1083°C.

24. (Previously Presented) A heat pipe comprising:
a hermetically sealed and partially evacuated enclosure, said enclosure comprising internal surfaces;
a wick disposed on at least one of said internal surfaces and comprising a plurality of particles joined together by a brazing compound comprising six percent by weight of a finely divided copper/gold brazing compound such that fillets of said brazing compound are formed between adjacent ones of said plurality of particles so as to form a network of capillary passageways between said particles wherein at least one vapor vent is defined through said capillary structure; and

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a two-phase fluid at least partially disposed within a portion of said wick.

25. (Previously Presented) A heat pipe according to claim 17 wherein said brazing compound is present in the range from about two percent to about ten percent by weight.

26. (Previously Presented) A heat pipe according to claim 17 wherein said plurality of particles comprise copper powder comprising particles size in a range from about twenty mesh to about two-hundred mesh.

27. – 30.

31. (Original) A heat pipe comprising a sealed and partially evacuated tubular enclosure having an internal surface covered by a brazed wick comprising a plurality of copper particles joined together by a brazing compound comprising about sixty-five percent weight copper and thirty-five percent weight gold such that fillets of said brazing compound are formed between adjacent ones of said plurality of particles so as to form a network of capillary passageways between said particles and including a plurality of vapor vents defined through said wick; and

a working fluid disposed within said tubular enclosure.

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32. -58. (Canceled)

59. (Previously Presented) A heat pipe comprising:

a hermetically sealed and partially evacuated enclosure, said enclosure comprising internal surfaces;

a wick disposed on at least one of said internal surfaces and comprising a plurality of aluminum and magnesium particles joined together by an aluminum/magnesium intermetallic alloy brazing compound such that fillets of said brazing compound are formed between adjacent ones of said plurality of particles so as to form a network of capillary passageways between said particles wherein at least one vapor vent is defined through said capillary structure; and

a two-phase fluid at least partially disposed within a portion of said wick.